

APPENDIX A

REFERENCES

1. Atchison, T. C., "Fragmentation Principles," Surface Mining, American Institute of Mining, Metallurgical, and Petroleum Engineers, Inc., New York 1968, pp 355-372.
2. Rinehart, J. S., "Reaction of Rock to Impulsive Loads," Proceedings of the First Congress, International Society of Rock Mechanics, Vol 2, 1966, pp 105-109.
3. Atchison, T. C. and Pugliese, J. M., "Comparative Studies of Explosives in Granite: Second Series of Tests," Report of Investigations 6434, 1964, U. S. Bureau of Mines, Washington, D. C.
4. Lutton, R. J. and Girucky, F. E., "Project Sulky, Geologic and Engineering Properties Investigations," Report PNE-720, Nov 1966, U. S. Atomic Energy Commission; also published as Miscellaneous Paper No. 3-894, U. S. Army Engineer Waterways Experiment Station, CE, Vicksburg, Miss.
5. Paone, J., Unger, H. F., and Tandanand, S., "Rock Drillability for Military Applications," Contract Report (preliminary), 1968, Minneapolis Mining Research Center; prepared for U. S. Army Research Office, U. S. Bureau of Mines.
- †6. Dick, R. A., "Factors in Selecting and Applying Commercial Explosives and Blasting Agents," Information Circular 8405, 1968, U. S. Bureau of Mines, Washington, D. C.
7. Brown, F. W., "Determinations of Basic Performance Properties of Blasting Explosives," Quarterly, Colorado School of Mines, Vol 51, No. 3, July 1956.
- †8. Du Pont de Nemours (E. I.) and Co., Inc., Blasters' Handbook, 15th ed., Wilmington, Del., 1967.
9. Hughes Tool Co., "Scientific and Technical Applications Forecast; Excavation," 1964, Office of the Chief of Research and Development, Department of the Army, Washington, D. C.

Note: References indicated by dagger (†) are recommended for availability to and study by field construction personnel.

EM 1110-2-3800

APP A

1 Mar 72

10. Tandanand, S. and Hartman, H. L., "Stress Distribution Beneath a Wedge-Shaped Drill Bit Loaded Staticly," International Symposium on Mining Research, Vol 2, Pergamon Press, New York, 1962, pp 799-831.
11. Price, N. J., Fault and Joint Development in Brittle and Semi-brittle Rock, 1st ed., Pergamon Press, New York, 1966.
12. Lutton, R. J., "Comparison of Strengths of Dense and Vesicular Types of Basalt," Engineering Geology, Vol 6, 1968, pp 1-11.
13. Liljestrand, W. E., "Rotary Percussion Air Hammer Drilling," Quarterly, Colorado School of Mines, Vol 56, No. 1, Jan 1961, p 90.
- †14. Langefors, U. and Kihlström, B., The Modern Technique of Rock Blasting, Wiley, New York, 1963.
15. Babic, M. M., "Blasting by the BM Method," Mining and Minerals Engineering, Apr 1968, pp 19-27.
16. Kochanowsky, B. J., "Theory and Practice of Inclined Drilling for Surface Mining," Quarterly, Colorado School of Mines, Vol 56, 1961, pp 291-308.
17. "Planning a Big Blast," Engineering and Mining Journal, Vol 165, Nov 1964, pp 84 and 85.
- †18. Ash, R. L., "The Mechanics of Rock Breakage," Pit and Quarry, Vol 56, No. 3, Sept 1963, p 119.
19. Harley, W. L., "A Three-Tunnel Blast in a Wisconsin Quarry," The Explosives Engineer, July-Aug 1957, pp 121-125.
20. Chevkin, A. I., "Experience in Canal Construction Using Excavation by Explosives," Gidrotekhnika i Melioratsiia, No. 1, 1967, pp 64-69; English translation by M. E. Day, Translation No. 730, U. S. Bureau of Reclamation, Denver, Colo.
- †21. "Presplitting," Construction Methods and Equipment, Vol 46, June 1964, pp 136-141.
22. Veith, F. L., "Line Drilling and Presplitting," Pacific Builder and Engineer, Aug 1965, p 64.
23. Stenhouse, D., "Some Applications of the Presplitting Technique in

- Rock Blasting," Mining and Minerals Engineering, Dec 1967, pp 453-464.
24. Nichols, H. L., Jr., Moving the Earth; the Workbook of Excavation, 2d ed., North Castle Books, Greenwich, Conn., 1962, pp 8-43.
 - †25. Leet, L. D., Vibrations from Blasting Rock, Harvard University Press, Cambridge, 1960.
 26. Carroll, R. D., "Rock Properties Interpreted from Sonic Velocity Logs," Journal, Soil Mechanics and Foundations Division, American Society of Civil Engineers, Vol 92, No. SM2, Paper 4715, Mar 1966, pp 43-51.
 27. Deklotz, E. J., Brown, J. W., and Stemler, O. A., "Anistropy of a Schistose Gneiss," Proceedings of the First Congress, International Society of Rock Mechanics, Vol 1, 1966, pp 465-470.
 28. Nicholls, H. R. and Duvall, W. I., "Presplitting Rock in the Presence of a Static Stress Field," Report of Investigations 6843, 1966, U. S. Bureau of Mines, Washington, D. C.
 29. Iliev, I. G., "An Attempt to Estimate the Degree of Weathering of Intrusive Rocks from Their Physico-Mechanical Properties," Proceedings of the First Congress, International Society of Rock Mechanics, Vol 1, 1966, pp 109-114.
 30. Theonen, J. R. and Windes, S. L., "Seismic Effects of Quarry Blasting," Bulletin 442, 1942, U. S. Bureau of Mines, Washington, D. C.
 31. Kinney, G. F., Explosive Shocks in Air, MacMillan, New York, 1962.
 32. Mayes, W. H. and Edge, P. M., "Effects of Sonic Boom and Other Shock Waves on Buildings," Minerals Research and Standards, Nov 1964.
 33. Perkins, B., Jr., Lorrain, P. H., and Townsend, W. H., "Forecasting the Focus of Air Blast Due to Meteorological Conditions in the Lower Atmosphere," Report No. 118, Oct 1960, Ballistic Research Laboratories, Aberdeen, Md.
 34. Perkins, B., Jr., and Jackson, W. F., "Handbook for Prediction of Air Blast Focusing," Report No. 1240, Feb 1964, Ballistic

Research Laboratories, Aberdeen, Md.

35. Langefors, U., Kihlström, B., and Westerberg, H., "Ground Vibrations in Blasting," Water Power, Feb 1958.
36. Edwards, A. T. and Northwood, T. D., "Experimental Studies of the Effects of Blasting on Structures," The Engineer, Vol 210, Sept 1960, pp 538-546.
37. Duvall, W. I. and Fogelson, D. E., "Review of Criteria for Estimating Damage to Residences from Blasting Vibrations," Report of Investigations 5968, 1962, U. S. Bureau of Mines, Washington, D. C.
38. Crandell, F. J., "Ground Vibration Due to Blasting and Its Effects upon Structures," Journal of the Boston Society of Civil Engineers, Apr 1949, pp 222-245.
39. Power, D. V., "A Survey of Complaints of Seismic-Related Damage to Surface Structures Following the Salmon Underground Nuclear Detonation," Bulletin of the Seismological Society of America, Vol 56, No. 6, Dec 1966, pp 1413-1428.
40. Goldman, D. E., "A Review of Subjective Responses to Vibrating Motion of the Human Body in the Frequency Range 1 to 70 Cycles per Second," Report No. 1, Project N. M. 004001, Mar 1948, Naval Medical Research Institute.
41. Engineering Research Associates, Inc., "Underground Explosion Test Program; Granite and Limestone," Technical Report No. 4, Vol 1, Aug 1952, St. Paul, Minn.
42. _____, "Underground Explosion Test Program; Sandstone," Technical Report No. 5, Vol 1, Feb 1953, St. Paul, Minn.
43. Duvall, W. I. and Atchison, T. C., "Rock Breakage with Confined Concentrated Charges," Mining Engineering, Vol 11, June 1959, pp 605-611.
44. Nicholls, H. R., Hooker, V. E., and Duvall, W. I., "Dynamic Rock Mechanics Investigations," Report on Project Cowboy, 1960, U. S. Bureau of Mines, Washington, D. C.
45. Duvall, W. I., "Design Criteria for Portable Seismographs," Report of Investigations 5708, 1961, U. S. Bureau of Mines, Washington, D. C.

46. Duvall, W. I., "Design Requirements for Instrumentation to Record Vibrations Produced by Blasting," Report of Investigations 6487, 1964, U. S. Bureau of Mines, Washington, D. C.
47. Duvall, W. I. et al., "Vibrations from Instantaneous and Millisecond-Delayed Quarry Blasts," Report of Investigations 6151, 1963, U. S. Bureau of Mines, Washington, D. C.
48. Devine, J. F. et al., "Effect on Charge Weight of Vibration Levels from Quarry Blasting," Report of Investigations 6774, 1966, U. S. Bureau of Mines, Washington, D. C.
49. Strange, J. N., Denzel, C. W., and McLane, T. I. III, "Cratering from High Explosive Charges; Analysis of Crater Data," Technical Report No. 2-547, Report 2, June 1961, U. S. Army Engineer Waterways Experiment Station, CE, Vicksburg, Miss.
50. Chabai, A. J., "Scaling Dimensions of Craters Produced by Buried Explosions," Research Report SC-RR-65-70, Feb 1965, Sandia Corporation, Albuquerque, N. Mex.
51. Vortman, L. J., "Maximum Missile Ranges from Surface and Buried Explosions," Research Report SC-RR-67-616, Sept 1967, Sandia Corporation, Albuquerque, N. Mex.
52. Canadian Industries, Ltd., CIL Blasters Handbook, Montreal, Canada, 1955.